

(BSP August 5, 2013)

All Class 4000D concrete shall be a project specific performance mix design conforming to the following requirements:

The specified compressive strength of all bridge deck concrete is 4,000 psi.

The minimum cementitious material content per cubic yard specified in this Section will not apply to this mix.

Aggregate shall use combined gradation in accordance with Section 9-03.1(5) with a nominal maximum aggregate size of 1-1/2 inches.

Permeability shall be less than 2,000 coulombs at 56 days in accordance with AASHTO T 277.

Freeze-thaw durability shall be provided by one of the following methods:

1. The concrete shall maintain an air content between 4.5 and 7.5 percent.
2. The concrete shall maintain a minimum air content that achieves a durability factor of 90 percent, minimum, after 300 cycles in accordance with AASHTO T 161, Procedure A. This air content shall not be less than 3.0 percent. Test samples shall be obtained from concrete batches of a minimum of 3.0 cubic yards.

Scaling shall have a visual rating less than or equal to 2 after 50 cycles in accordance with ASTM C 672.

Shrinkage at 28 days shall be less than 320 micro strain in accordance with AASHTO T 160.

Modulus of elasticity shall be measured in accordance with ASTM C 469.

Density shall be measured in accordance with ASTM C 138.

The Contractor shall submit the mix design on WSDOT Form 350-040, including the information specified in this Section and test results supporting the above requirements. Samples for testing may be obtained from either laboratory or concrete plant batches. If concrete plant batches are used, the minimum batch size shall be 3.0 cubic yards. The Contractor shall submit the mix design to the Project Engineer at least 30 calendar days prior to the placement of concrete on the bridge deck.